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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/633,025	08/01/2003	Vernon M. Benson	2507-5936US (22025-US)	4729

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EXAMINER

EWALD, MARIA VERONICA

ART UNIT

PAPER NUMBER

1722

DATE MAILED: 10/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/633,025	Applicant(s) BENSON ET AL.	
	Examiner Maria Veronica D. Ewald	Art Unit 1722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 36-74 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 73 and 74 is/are allowed.
- 6) ☒ Claim(s) 36-47, 52-58, 61, 62, 64, 65 and 67-72 is/are rejected.
- 7) ☒ Claim(s) 48-51, 59, 60, 63 and 66 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>8/1/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

13. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 69 and 70 recite the limitation "the at least one roller" in each claim, respectively; however, there is insufficient antecedent basis for this limitation in the claim. Prior mention of a roller in each of these claims is a "plurality of rollers" and "each roller of the plurality." There is no initial mention that the plurality of rollers is comprised of "at least one roller." Appropriate correction is necessary.

Allowable Subject Matter

14. Claims 48 – 51, 59 – 60, 63 and 66 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The closest prior art references of Leemon, et al. (U.S. 6,432,236) and Mossi (U.S. 6,071,458) fail to teach that the at least one mandrel includes a plurality of mandrels laterally spaced from one another, wherein the at least one mandrel includes a first section extending along a longitudinal axis and a second section which deviates from the longitudinal axis, and wherein the carriage assembly and the at least one roller are configured to maintain engagement with the second section as it deviates from the longitudinal axis. The apparatus of Leemon, et al. and Mossi are comprised of a roller and a mandrel, wherein

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if the roller deviates from the longitudinal axis, it does not maintain any contact or engagement with the same section of the mandrel or any contact at all. Furthermore, though Mossi may teach a plurality of rollers, the plurality of rollers does not move sequentially.

Claims 73 and 74 are allowed. The following is a statement of reasons for the indication of allowable subject matter: The closest prior art references of Leemon, et al. (U.S. 6,432,236), Fell (U.S. 5,543,199) and Mossi (U.S. 6,071,458) all fail to teach an apparatus for forming elongated composite structural members comprising a first mandrel mounted on the base, the first mandrel exhibiting a first geometric configuration; a second mandrel mounted on the base, the second mandrel exhibiting a second geometric configuration different from the first geometric configuration.

With respect to the reference of Leemon, et al., Leemon, et al. teach the presence of only one mandrel on which plies of material are laid. With respect to the references of Fell and Mossi, both also only teach the presence of one mandrel or former on which plies of material are laid.

With respect to claim 74, the references of Leemon, et al., Fell, and Mossi all fail to teach a roller wherein the at least one roller is configured to maintain engagement with the mandrel's second section as it deviates from the longitudinal axis. In each reference, any deviation from the longitudinal axis by the least one roller causes it to lose any contact or engagement with the same section of the mandrel or lose contact with the mandrel.

Claim Rejections - 35 USC § 102

15. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 71 is rejected under 35 U.S.C. 102(b) as being anticipated by Fell (U.S. 5,543,199). Fell teaches an apparatus for forming elongated composite structural members comprising a base (figure 1); at least one mandrel mounted on the base, the at least one mandrel exhibiting a substantially elongated geometry (items 1 and 4 – figures 1 and 2A); a carriage assembly coupled to the base (column 13, lines 44 – 45); at least one roller exhibiting a geometry configured to at least partially complementarily engage the at least one mandrel as the at least one roller rolls there along, the at least one roller being coupled with the carriage assembly, wherein the carriage assembly is movably coupled to the base such that it displaces the at least one roller in a longitudinal direction with respect to the substantially elongated geometry of the at least one mandrel (column 12, lines 24 – 27; column 13, lines 1 – 10); and at least one force-applying mechanism configured to apply a desired force to the least one mandrel through the at least one roller (column 13, lines 14 – 15; column 16, lines 45 – 50).

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Claims 36 – 37, 39 – 47, 52 – 58, 67 – 68, 71 – 72 are rejected under 35 U.S.C. 102(e) as being anticipated by Leemon, et al. (U.S. 6,432,236). Leemon, et al. teach a base (figure 2); at least one mandrel mounted on the base, the at least one mandrel exhibiting a substantially elongated geometry (item 43 – figure 1); a carriage assembly movably coupled to the base (figure 1); at least one roller exhibiting a geometry having a substantially continuously convex arrangement surface as it rotates about an axis, the engagement surface being configured to at least partially complementarily engage the at least one mandrel as the at least one roller rolls there along, the at least one roller being coupled with the carriage assembly (item 60 – figure 2; column 6, lines 13 – 15); and at least one force-applying mechanism to apply a desired force to the least one mandrel through the at least one roller (column 5, lines 60 – 66; column 6, lines 10 – 18); wherein the at least one roller and carriage assembly are mutually configured for the least one roller to be removed from the carriage assembly and replaced by another roller exhibiting a geometry configured to substantially completely complementarily engage the least one mandrel (figure 2).

With respect to claims 39 – 47, the reference further teaches that there is an automated material-dispensing device configured to dispense a plurality of plies of material over the at least one mandrel along a length thereof (column 5, lines 11 – 15); wherein the automated material-dispensing device is configured to dispense the plurality of plies of material including a first ply exhibiting a first width, and at least a second ply exhibiting a second width different than the first width (figure 1); wherein the at least one roller and the at least one mandrel are complementarily configured to form

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an elongated composite structural member substantially exhibiting a cross-sectional geometry of a hat as taken transversely to a length thereof (figure 5); wherein the at least one roller and the at least one mandrel are complementarily configured to form an elongated composite structural member substantially exhibiting a cross-sectional geometry of at least one C-shape as taken transversely to a length thereof (figure 5); wherein the at least one roller and the at least one mandrel are complementarily configured to form an elongated composite structural member substantially exhibiting a cross-sectional geometry of at least one angle as taken transversely to a length thereof (figure 5); wherein the at least one roller and the at least one mandrel are complementarily configured to form an elongated composite structural member substantially exhibiting a cross-sectional geometry including at least one arcuate section taken transversely to a length thereof (figure 5); wherein the at least one force-applying mechanism includes at least one weight operably coupled to the at least one roller to press the at least one roller over the at least one mandrel (figure 2); wherein the at least one force-applying mechanism includes a hydraulic system and wherein the at least one force-applying mechanism includes a pneumatic system (figure 2; column 6, lines 10 – 20, 25 – 31).

With respect to claims 52 – 58, the reference further teaches wherein the apparatus is further comprised of a heating device configured and located to heat the at least one mandrel (column 9, lines 24 – 30); wherein there is a controller operably coupled with the apparatus and configured to control movement of the carriage assembly relative to the base about a plurality of axes and wherein the controller is

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further configured to control operation of the at least one force-applying mechanism (column 6, lines 1 – 30). In addition, the reference teaches that the apparatus is further comprised of an automated material-dispensing device configured to dispense a plurality of plies of material over the at least one mandrel along a length thereof, and a heating device configured and located to provide heat to at least one of the plurality of plies and the at least one mandrel and wherein the controller is configured to control operation of the automated material-dispensing device and the heating device (column 6, lines 1 – 30).

With respect to claims 67 – 68, Leemon, et al. further teach that the carriage assembly is movably coupled to the base, such that it displaces the at least one roller in a longitudinal direction with respect to the substantially elongated geometry of the at least one mandrel (figure 2); wherein the at least one roller is configured to move laterally with respect to a length of the substantially elongated geometry of the at least one mandrel while maintaining engagement with the at least one mandrel as the at least one roller is displaced in a direction along the length of the substantially elongated geometry of the at least one mandrel (column 8, lines 25 – 30).

With respect to claims 71 – 72, Leemon, et al. teach an apparatus for forming elongated composite structural members comprising: a base (figure 2); at least one mandrel mounted on the base, the at least one mandrel exhibiting a substantially elongated geometry (item 43 – figure 1); a carriage assembly movably coupled to the base (figure 2); at least one roller exhibiting a geometry configured to at least partially complementarily engage the at least one mandrel as the at least one roller rolls there

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along, the at least one roller being coupled with the carriage assembly, wherein the carriage assembly is movably coupled to the base such that it displaces the at least one roller in a longitudinal direction with respect to the substantially elongated geometry of the at least one mandrel (item 60 – figure 2; column 6, lines 10 – 20); and at least one force-applying mechanism configured to apply a desired force to the least one mandrel through the at least one roller (column 6, lines 10 – 20). The reference also teaches an apparatus for forming elongated composite structural members comprising: a base (figure 1); at least one mandrel mounted on the base, the at least one mandrel exhibiting a substantially elongated geometry (item 43 – figure 1); a carriage assembly movably coupled to the base (figure 2); at least one roller exhibiting a geometry configured to at least partially complementarily engage the least one mandrel as the at least one roller rolls there along, the at least one roller being coupled with the carriage assembly, wherein the at least one roller is configured to move laterally with respect to a length of the substantially elongated geometry of the at least one mandrel while maintaining engagement with the at least one mandrel as the at least one roller is displaced in a direction along the length of the substantially elongated geometry of the at least one mandrel (item 60 – figure 2; column 6, lines 10 – 20; column 8, lines 25 – 30); and at least one force-applying mechanism configured to apply a desired force to the at least one mandrel through the at least one roller (column 6, lines 10 – 20).

Claims 36 – 38, 41 – 45, 55 – 56, 61 – 62, 64 – 65, 67, 69 – 71 are rejected under 35 U.S.C. 102(b) as being anticipated by Mossi (U.S. 6,071,458). Mossi teaches

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a base (figure 2); at least one mandrel mounted on the base, the at least one mandrel exhibiting a substantially elongated geometry (item 5 – figure 2); a carriage assembly movably coupled to the base (figure 4); at least one roller exhibiting a geometry configured to at least partially complementarily engage the least one mandrel as the at least one roller rolls there along (item 11 – figure 2), the at least one roller coupled with the carriage assembly (figures 2 and 4); and at least one force-applying mechanism configured to apply a desired force to the at least one mandrel through the least one roller (column 3, lines 1 – 5); wherein the at least one roller and carriage assembly are mutually configured for the at least one roller to be removed from the carriage assembly and replaced by another roller exhibiting a geometry configured to substantially completely complementarily engage the at least one mandrel (column 2, lines 55 – 60); wherein the at least one roller comprises a plurality of rollers coupled with the carriage assembly (figure 2);

With respect to claims 41 – 46, Mossi further teaches that wherein the at least one roller and the at least one mandrel are complementarily configured to form an elongated composite structural member substantially exhibiting a cross-sectional geometry of a hat as taken transversely to a length thereof (figure 7); wherein the at least one roller and the at least one mandrel are complementarily configured to form an elongated composite structural member substantially exhibiting a cross-sectional geometry of at least one C-shape as taken transversely to a length thereof (figure 8b); wherein the at least one roller and the at least one mandrel are complementarily configured to form an elongated composite structural member substantially exhibiting a

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cross-sectional geometry of at least one angle as taken transversely to a length thereof (figure 7); wherein the at least one roller and the at least one mandrel are complementarily configured to form an elongated composite structural member substantially exhibiting a cross-sectional geometry including at least one arcuate section taken transversely to a length thereof (figure 8b); wherein the at least one force-applying mechanism includes at least one weight operably coupled to the at least one roller to press the at least one roller over the at least one mandrel (column 3, lines 1 – 9); wherein the at least one force-applying mechanism includes a hydraulic system (column 3, lines 1 – 5).

With respect to claims 55 – 56, Mossi further teaches a controller operably coupled with the apparatus and configured to control movement of the carriage assembly relative to the base about a plurality of axes (figure 4); wherein the controller is further configured to control operation of the at least one force-applying mechanism (figure 4; column 3, lines 1 – 12).

With respect to claims 61 – 62 and 64 – 65, the reference further teaches that the plurality of rollers includes a first roller configured to engage a first portion of the at least one mandrel and at least a second roller configured to engage a second portion of the at least one mandrel, the first portion of the at least one mandrel being substantially different than the second portion of the at least one mandrel (figure 2); wherein the first roller is engaged with the first portion of the at least one mandrel and the at least a second roller is engaged with the second portion of the at least one mandrel substantially simultaneously (figure 2); wherein the at least one mandrel

exhibits a cross-sectional geometry taken substantially transverse to a length thereof, and wherein the plurality of rollers includes a first roller configured to engage a portion of the at least one mandrel at a first location with respect to the cross-sectional geometry and at least a second roller configured to engage another portion of the at least one mandrel at a second location with respect to the cross-sectional geometry, the first location be substantially different than the second location (figure 2); wherein the first roller is engaged with the first portion of the at least one mandrel and the at least a second roller is engaged with the second portion of the at least one mandrel substantially simultaneously (figure 2); wherein the carriage assembly is movably coupled to the base such that it displaces the at least one roller in a longitudinal direction with respect to the substantially elongated geometry of the at least one mandrel (figure 2; column 3, lines 20 – 30).

With respect to claims 69 – 71, Mossi teaches an apparatus for forming elongated composite structural members comprising: a base (figure 2); at least one mandrel mounted on the base, the at least one mandrel exhibiting a substantially elongated geometry (item 5 – figure 2); a carriage assembly movably coupled to the base (figure 4; column 3, lines 20 – 25); a plurality of rollers, each roller of the plurality exhibiting a geometry configured to at least partially complementarily engage the least one mandrel as the at least one roller rolls there along, each roller of the plurality being coupled with the carriage assembly, wherein the plurality of rollers includes a first roller configured to engage a first portion of the mandrel and at least a second roller configured to engage a second portion of the mandrel (figure 2), the first portion of the

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mandrel being substantially different than the second portion of the mandrel (figure 2); and at least one force-applying mechanism configured to apply a desired force to the at least one mandrel through the plurality of rollers (column 3, lines 1 – 5). Mossi also teaches an apparatus for forming elongated composite structural members comprising: a base (figure 2); at least one mandrel mounted on the base, the at least one mandrel exhibiting a substantially elongated geometry and a cross-sectional geometry taken substantially transverse to a length thereof (item 5 – figure 2); a carriage assembly movably coupled to the base (figure 4); a plurality of rollers, each roller of the plurality exhibiting a geometry configured to at least partially complementarily engage the least one mandrel as the at least one roller rolls there along, each roller of the plurality being coupled with the carriage assembly, wherein the plurality of rollers includes a first roller configured to engage a portion of the at least one mandrel at a first location with respect to the cross-sectional geometry and at least a second roller configured to engage another portion of the at least one mandrel at a second location with respect to the cross-sectional geometry, the first location be substantially different than the second location (figure 2); and at least one force-applying mechanism configured to apply a desired force to the at least one mandrel through the plurality of rollers (column 3, lines 1 – 5). In addition, Mossi teaches an apparatus for forming elongated composite structural members comprising: a base (figure 2); at least one mandrel mounted on the base, the at least one mandrel exhibiting a substantially elongated geometry (item 5 – figure 2); a carriage assembly movably coupled to the base (figure 4); at least one roller exhibiting a geometry configured to at least partially complementarily engage the least

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one mandrel as the at least one roller rolls there along (item 9 – figure 2), the at least one roller being coupled with the carriage assembly, wherein the carriage assembly is movably coupled to the base such that it displaces the at least one roller in a longitudinal direction with respect to the substantially elongated geometry of the at least one mandrel (figure 4) ; and at least one force-applying mechanism configured to apply a desired force to the at least one mandrel through the at least one roller (column 3, lines 1 – 10).

Response to Arguments

16. Applicant's arguments, see pages 12 – 16, filed August 17, 2006, with respect to the rejection(s) of claim(s) 36 – 61 under 102(b) and 102(e) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Leemon, et al., Mossi and Fell. With respect to the amendment of claim 36, Examiner agrees that the originally-cited references of Fell and Gardner do not teach a roller with a substantially continuous convex engagement surface. Fell teaches a toothed surface, similar to a gear while Gardner teaches a smooth shaft with a surrounding elastomeric member. However, in light of the amendments to the original claims and the newly-added claims, the references of Leemon, et al. and Mossi have been cited to show a roller with a substantially convex engagement surface. Furthermore, the reference of Fell has again been cited with respect to claim 71. Remaining claims, not rejected, have been indicated as either being objected to or allowable in the preceding paragraphs, since

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none of the closest prior art references cited teach the structural limitations of Applicant's apparatus as discussed by the Examiner.

Conclusion

17. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maria Veronica D. Ewald whose telephone number is 571-272-8519. The examiner can normally be reached on M-F, 8 - 4:30.

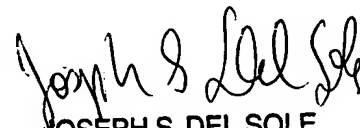
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Yogendra Gupta can be reached on 571-272-1316. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MVE


JOSEPH S. DEL SOLE
PRIMARY EXAMINER
10/24/06